

**Cherokee National Forest
USDA Forest Service
Southern Region**

Roads Analysis Report

Upper Hiwassee/Coker Creek Assessment

September 2005

BACKGROUND

On January 12, 2001, the National Forest System Road Management rule was published in the Federal Register. The adoption of the final rule revised the regulations concerning the management, use, and maintenance of the National Forest Transportation System.

The purpose of this road analysis is to provide line officers with critical information to develop road systems that are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

SCOPE

The Upper Hiwassee/Coker Creek Assessment area is approximately 44,747 acres in size with approximately 21,468 of those acres National Forest System land (48% ownership). The majority of the assessment area (17,754 ac) is in Management Prescription (MP) 9.H of the Cherokee National Forest Revised Land and Resource Management Plan. Other MPs represented include: 4.F (443 ac), 7.B (2,126 ac), and 8.B (1,145 ac). Figure 1 displays the location of the analysis area within the Ocoee/Hiwassee Ranger District of the Cherokee National Forest.

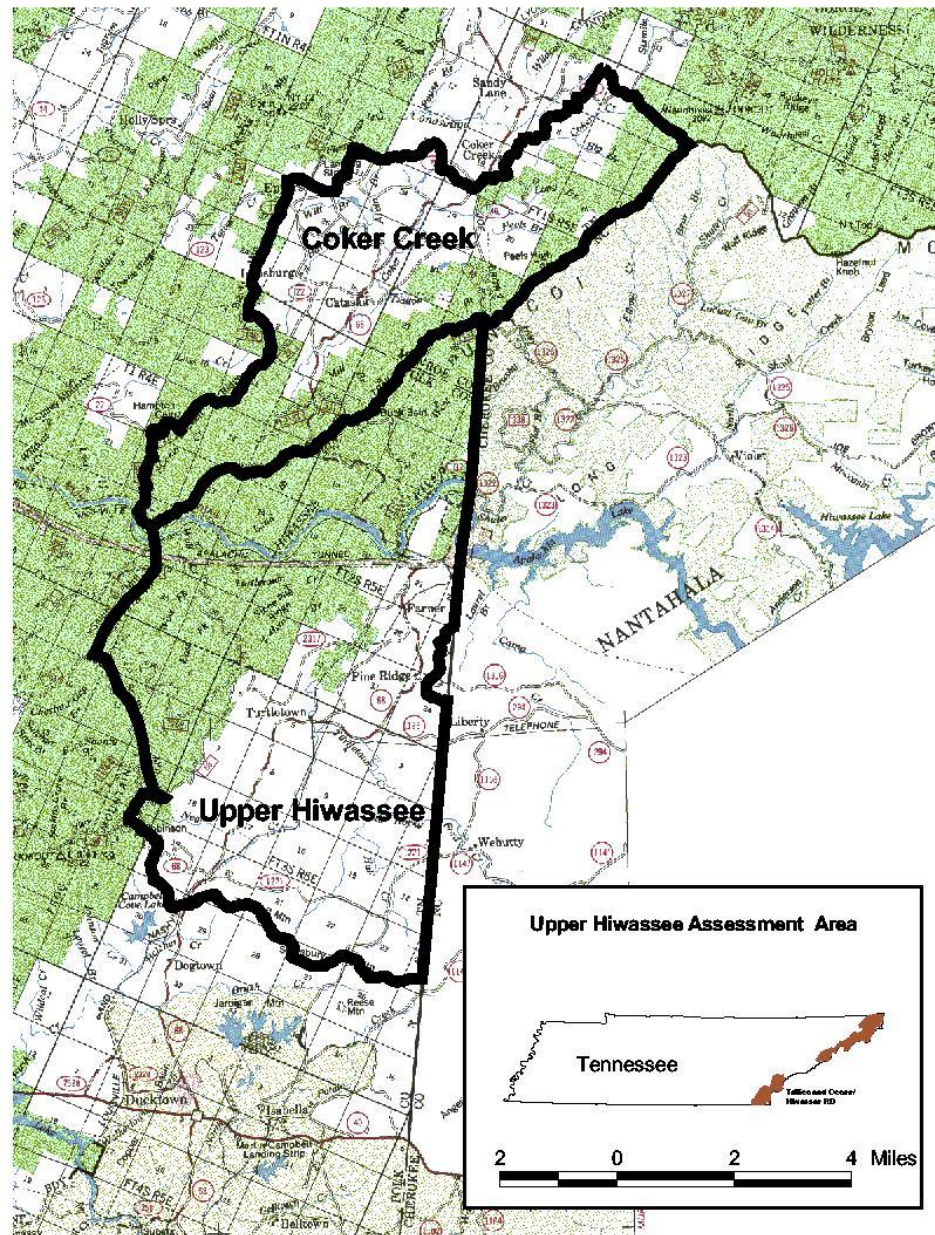
OBJECTIVES

The main objectives of this road analysis are to:

- Identify the need for change by comparing the current road system to the desired condition.
- Inform the line officer of important ecological, social, and economic issues related to roads within the analysis area.

EXISTING SYSTEM ROAD CONDITIONS

Most of the study area is on National Forest System land, and of the roads assessed in and near the boundary of this study area, most are National Forest System Roads (NFSRs) under the jurisdiction and maintenance of the Forest Service. There are approximately 79 miles of Forest Service jurisdiction roads within the analysis area. Many of the Forest Service roads (approximately 49 miles) are gated, vegetated, and closed seasonally or throughout the year. Most of the NFSRs are in fair to good condition, but all could use more maintenance. Deferred maintenance needs exist for just about all roads.



See the “Upper Hiwassee/Coker Creek Road Listing” (Attachment A) for basic road data that describes in more detail each road situation.

DESIRED ROAD SYSTEM CONDITIONS

The desired condition is to provide a road system that is safe, responsive to public needs, meets the needs for forest management, is affordable, and has minimal ecological effects.

KEY ISSUES

The key issues related to road construction, relocation, decommissioning, closures, and other road management actions are:

- Keep system road construction to a minimum.
- Protect riparian corridor.
- Decrease sedimentation.

ANALYSIS QUESTIONS

<p>Pages 25-30 of FS-643, Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (FS-643) lists 72 questions to be used as a checklist to identify potential benefits, problems, or risks. Some of these questions may not be addressed, because they are irrelevant or are appropriate only if there are extraordinary circumstances specific to the analysis area (some questions would be answered the same for any road or road system around the forest and are therefore beyond the scope of this analysis). This analysis will only address those questions that are both relevant and specific to the roads within the analysis area.</p> <p>Question</p>	<p>Relevant to this analysis area?</p>	<p>Specific to this analysis area?</p>	<p>Addressed in this Analysis?</p>
AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?	Y	N	Y
AQ (2): How and where does the road system generate surface erosion?	Y	N	Y
AQ (3): How and where does the road system affect mass wasting?	Y	N	Y
AQ (4): How and where do road-stream crossings influence local stream channels and water quality?	Y	N	Y
AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?	Y	N	Y
AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity?	Y	N	Y
AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?	Y	N	Y
AQ (8): How and where does the road system affect wetlands?	Y	N	Y
AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains, constraints on channel migration, and the movement of large wood, fine organic matter, and sediment?	Y	N	Y
AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species (i.e., fish and amphibians) are affected and to what extent?	Y	N	Y
AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?	Y	N	Y
AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species?	Y	N	Y
AQ (13): How and where does the road system facilitate the introduction of non-native aquatic species?	Y	N	N
AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity or areas containing rare or	Y	N	Y

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unique aquatic species or species of interest?			
TW (1): What are direct effects of the road system on terrestrial species habitat?	Y	N	N
TW (2): How does the road system facilitate human activities that affect habitat?	Y	N	N
TW (3): How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?	Y	N	N
TW (4): How does the road system directly affect unique communities or special features in the area?	Y	N	N
EF (1): What ecological attributes, particularly those unique to the region, would be affected by roading of currently unroaded areas?	Y	N	N
EF (2): To what degree does the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?	Y	N	N
EF (3): To what degree does the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?	Y	N	N
EF (4): How does the road system affect ecological disturbance regimes in the area?	Y	N	N
EF (5): What are the adverse effects of noise caused by developing, using, and maintaining roads?	Y	N	N
EC (1): How does the road system affect the Agency's direct costs and direct revenues used in assessing financial efficiency?	Y	N	N
EC (2): How does the road system affect the priced and non-priced consequences included in economic efficiency analysis used to assess net benefits to society?	Y	N	N
EC (3): How does the road system affect the distribution of benefits and costs among affected people?	Y	N	N
TM (1): How does the road spacing and location affect logging system feasibility?	Y	N	Y
TM (2) and TM (3): How does the road system affect managing the suitable timber base? How does the road system affect access to timber stands needing silvicultural treatment?	Y	N	Y
MM (1): How does the road system affect access	Y	N	N

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to locatable, leasable, and salable minerals?			
RM (1): How does the road system affect access to range allotments?	N	N	N
WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?	Y	N	Y
WP (2): How does road development and use affect water quality in municipal watersheds?	Y	N	Y
WP (3): How does the road system affect access to hydroelectric power generation?	Y	N	Y
SP (1): How does the road system affect access for collecting special forest products?	Y	N	N
SU (2): How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?	Y	N	Y
GT (1): How does the road system connect to public roads and provide primary access to communities?	Y	N	Y
GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad-hoc communities, subdivisions, in holdings, and so on)?	Y	N	Y
GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, COT easements)?	Y	N	Y
GT (4): How does the road system address the safety of road users?	Y	N	Y
AU (1): How does the road system affect access needed for research activities, inventory, and monitoring?	Y	N	N
AU (2): How does the road system affect investigative or enforcement activities?	Y	N	N
PT (1): How does the road system affect fuels management?	Y	N	N
PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?	Y	N	N
PT (3): How does the road system affect risk to fire fighters and to public safety?	Y	N	N
PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility	Y	N	N

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and human health concerns?			
UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded* recreation opportunities?	Y	N	Y
UR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?	Y	N	Y
UR (3): What are the adverse effects of noise and other disturbance caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities?	Y	N	Y
UR (4): Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads?	Y	N	Y
UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	Y	N	Y
UR (6): How is developing new roads into unroaded areas affecting the Scenic Integrity Objective, SIO(s)? Note: Some forests are still using the Visual Management System (VMS). If that is the case, substitute VQO for SIO.	Y	N	Y
RR (1): Is there now or will there be in the future excess supply or excess demand for road-related* recreation opportunities?	Y	N	N
RR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of road-related recreation opportunities?	Y	N	Y
RR (3): What are the adverse effects of noise and other disturbances caused by building, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?	Y	N	N
RR (4): Who participates in road-related recreation in the areas affected by road building, changes in road maintenance, or road decommissioning?	Y	N	Y
RR (5): What are these participants attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	Y	N	Y
RR (6): How does the road system affect the Scenic Integrity Objective, SIO?	Y	N	Y
PV (1): Do areas planned for road building,	Y	N	N

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closure, or decommissioning have unique physical or biological characteristics, such as unique natural features and threatened or endangered species (see TW4)?			
PV (2): Do areas planned for road building, closure, or decommissioning have unique cultural, traditional, symbolic, sacred, spiritual, or religious significance?	Y	N	N
PV (3): What, if any, groups of people (ethnic groups, subcultures, and so on) hold cultural, symbolic, spiritual, sacred, traditional, or religious values for areas planned for road entry or road closure?	Y	N	N
PV (4): Will building, closing, or decommissioning roads substantially affect passive-use value?	Y	N	N
SI (1): What are people's perceived needs and values for roads? How does road management affect people's dependence on, need for, and desire for roads?	Y	N	N
SI (2): What are people's perceived needs and values for access? How does road management affect people's dependence on, need for, and desire for access?	Y	N	N
SI (3): How does the road system affect access to paleontological, archaeological, and historical sites?	Y	N	N
SI (4): How does the road system affect cultural and traditional uses (such as plant gathering, and access to traditional and cultural sites) and American Indian treaty rights?	Y	N	N
SI (5): How are roads that constitute historic sites affected by road management?	Y	N	N
SI (6): How are community, social, and economic health affected by road management (for example, lifestyles, businesses, tourism industry, infrastructure maintenance)?	Y	N	N
SI (7): What is the perceived social and economic dependency of a community on an unroaded area versus the value of that unroaded area for its intrinsic existence and symbolic values?	Y	N	N
SI(8): How does road management affect wilderness attributes, including natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation?	Y	N	N
SI (9): What are traditional uses of animal and plant species in the area of analysis?	Y	N	N

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<p>SI (10): How does road management affect people's sense of place?</p>	Y	Y	Y
<p>CR (1): How does the road system, or its management, affect certain groups of people (minority, ethnic, cultural, racial, disabled, and low-income groups)?</p>	Y	N	N

Questions from the table above that are both relevant and specific to the roads in this analysis area will be discussed below:

AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?

In general, roads intercept precipitation on the road surface, cutbanks and from subsurface water moving down adjacent hillslopes. Water can be concentrated either on the road surface or in adjacent ditches, and in places, is rerouted from pathways it would otherwise take if the road were not present. By intercepting surface and subsurface water flow, and diverting it into ditches and channels, roads effectively increase the density of streams in the landscape. As a result, the timing of flood flows is quickened and the peak of flood flows is increased. The magnitude of this effect is dependent on the density of roads in the watershed. This analysis area includes several small sub-watersheds of the Hiwassee River including Coker Creek, West Fork Brushy Creek, Land Branch, Turtletown Creek, Wolf Creek, and several small composite streams. Approximately 80 miles of Forest Service roads are located within the analysis area and a total of about 62 miles of state, county, private, and TVA roads have been inventoried. Within this analysis area, Forest Roads 311, 22, 22B, 23, 23A, 66, 1131, 2133, 2137, 1166 and 1168 are most significant in terms of their length and potential influence on surface and subsurface hydrology. For the most part, these are basically ridge-top and upper sideslope road locations and their effect on surface or subsurface hydrology is primarily confined to crossings of ephemeral, intermittent and perennial drainages. Forest Road 311 is located adjacent or in close proximity to Watertank Branch for a portion of its length and 23 is located close to the Hiwassee River and Wolf Creek. Roads within this analysis area are generally outsloped with dips and culverts providing drainage or are insloped with ditches and cross drain culverts.

Surface drainage can be improved by additional aggregate surfacing, additional drainage dips, berms and outsloping. These mitigation measures can reduce the impacts associated with the roads, including effects to surface and subsurface hydrology and erosion/sediment rates.

AQ (2): How and where does the road system generate surface erosion?

By their nature, all native and aggregate surfaced roads will generate some surface erosion. The amount depends on factors such as soil type, road gradient, the spacing and effectiveness of drainage structures, traffic use and maintenance activity. The roadbed and cut and fill slopes are potential sources of surface erosion. Some roads have long drainage ditch runs that result in accelerated erosion. Turnout of water from these ditches can result in sediment delivery to nearby streams. Many of the roads within this analysis area are closed to all but administrative traffic. The roads are vegetated with a grass-wildlife mixture and serve as linear wildlife openings. As a result, surface erosion is minimized from these roads. During commercial use, surface erosion will increase, but effective mitigation described in AQ1 will limit surface erosion. Surface erosion will also be a concern on constructed specified and temporary roads until the roads are closed and revegetated. Location and grade will be important factors in limiting surface erosion during use.

AQ (3): How and where does the road system affect mass wasting?

Mass wasting is generally not a problem in the analysis area, although small slides and slumps are possible below culvert outfalls and along fill slopes where road drainage is concentrated. Proper sizing and location of drainage culverts can reduce this potential, as well as, armoring the outfall areas associated with drainage structures, as needed.

AQ (4): How and where do road-stream crossings influence local stream channels and water quality?

The number of stream crossings (culverts/bridges/ford) found within the analysis area is not inventoried at this time. There are numerous crossings of ephemeral drains by culverts and several crossings of intermittent or perennial streams that are made primarily by culverts. These crossings represent direct interaction of roads and streams and serve as a primary conduit for road-related erosion and storm drainage to reach streams. Accelerated sediment delivery to affected streams occurs at these points, and can affect water quality and substrate condition.

AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?

Due to the nature and location of the roads within this analysis area, there is little potential for chemical pollution of streams related to Forest Service roads. If roads were used to transport chemicals such as herbicide, the greatest potential for spills affecting aquatic resources would be at stream crossings. Very little of the road within this analysis area is located adjacent to stream channels. Most of the road (90%+) is located on ridgetop or upper sideslope locations. State Highway 68 and numerous county roads might require the need for deicing on an infrequent basis, and could introduce contaminants into nearby waters such as the Hiwassee River.

AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity?

The road system in the analysis area is connected to streams primarily at stream crossings. Insloped roads with ditch drainage and cross drains tend to expand hydrologic connectivity, but there is infrequent roadside ditch drainage that empties directly into intermittent or perennial streams. Occasional road surfaces lie adjacent to streams and runoff and sediment from roadbed/fill surfaces is transported directly to streams. The vast majority of road mileage within this analysis area is located along ridge-tops or upper side-slopes. Hydrologic connectivity is greatly reduced due to road location. Road crossings serve as an input point for road-related soil erosion to reach stream channels. Surface and subsurface water can be captured by roadbeds

and cut slopes. If this water moves directly to stream channels, peakflows and hydrograph timing can be somewhat altered from the condition associated with an unroaded watershed.

AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?

Wolf Creek is classified as “Naturally Reproducing Trout Stream”. Turtletown Creek, Brushy Creek and Coker Creek are classified as “Trout Stream”. Other tributaries within the analysis area are classified as “fish and aquatic life”, “recreation”, livestock watering and wildlife”, and “irrigation”. The Hiwassee River is classified for “domestic and industrial water supply”. Little change in use and demand within the analysis area is expected in the near future. Accelerated sediment delivery from roads has the potential to adversely affect fish and other aquatic organisms and their habitat in affected streams, and excessive turbidity can increase the cost of providing domestic and industrial water to users. Fish or other aquatic organism passage is discussed in AQ10.

AQ (8): How and where does the road system affect wetlands?.

There are no known locations where the road system is directly affecting wetland condition or function. Segments of some roads (2135A, 23 and 311) may encroach into the riparian area of Land Branch, Watertank Branch, Wolf Creek and other streams, but there is no direct affect to wetlands.

AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains, constraints on channel migration, and the movement of large wood, fine organic matter, and sediment?

The road system can alter physical channel dynamics by increasing runoff and sediment delivery to affected streams. Sediment entering streams can reduce pool depths and contribute to changes in channel substrate (i.e. embeddedness). Stream crossings can retard or prohibit the movement of large woody debris, fine organic matter and sediment. As previously noted there are numerous stream crossings within the analysis area, but a complete inventory has not been completed. It is estimated that 2 to 3 miles of road within this analysis area may be located within the floodplain or riparian area associated with affected streams. Floodplain isolation and channel migration impediment resulting from road location is not a concern within this analysis area.

AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species (i.e. fish and amphibians) are affected and to what extent?

Restrictions to migration for aquatic species primarily occur at stream crossings. There are 36 perennial stream crossings along the road system in this project area; 9 are bridges, 22 are culverts, and 5 are fords. Eight of the culverts are potential barriers to fish, amphibians, or macroinvertebrates; three of these are administered by the Forest.

Twenty of twenty-three stream reaches capable of supporting fish in the analysis area have been surveyed; two of the three unsurveyed reaches are scheduled to be surveyed in 2005. Bear Branch is the only stream reach that has not been surveyed and is not scheduled to be surveyed. The unsurveyed stream reaches are unlikely to support any new or rare species.

Two stream reaches are capable of supporting mussels; both have been thoroughly surveyed and are monitored annually.

Forty-five species of fish and fourteen species of mussels have been documented in these streams including: two endangered mussels; two sensitive fish; four sensitive mussels; one locally rare fish; and seven locally rare mussels.

The three culverts administered by the Forest Service are not migration barriers for any of the threatened, endangered, sensitive or locally rare (TESLR) species because none of these species normally occur in very small, steep gradient, headwater streams.

Recommendation – None.

AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?

Of the 141.2 miles of roads in this project area, 11.1 (8%) are within the riparian corridor; only 1.2 (1%) miles are administered by the Forest Service. Shading, litterfall and riparian plant communities are not significantly impacted by these roads because the canopy remains closed and the amount of permanently altered habitat is minor.

Recommendation – Sustain trees along riparian corridors.

AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk species?

Fishing and poaching could occur for the largemouth, smallmouth, spotted and rock bass, rainbow and brown trout, green sunfish, redbreast sunfish, and bluegill in this analysis area. The “at-risk” species (TESLR) are not subject to fishing or poaching. Direct habitat loss from the road system is unlikely because the riparian corridor will be protected.

Recommendation – Protect the riparian corridor.

AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity or areas containing rare or unique aquatic species or species of interest?

diversity, contains unique aquatic species, and is designated as a mussel sanctuary by Tennessee. Only one bridge spans the Hiwassee River in the analysis area; it could pose a threat from an accidental chemical spill. Sediment, from unimproved roads on private lands, is impacting tributaries, especially Turtletown Creek, and the unique aquatic environment.

Recommendation – Work with state, other federal agencies and local landowners to diminish sediment runoff.

TM (1): How does the road spacing and location affect logging system feasibility?

The existing road system for the Hiwassee and Coker Creek watersheds should provide the minimum roading level needed to access most of the suitable forest land base. Most suitable land is within ½ mile of a system road. Approximately 500 acres of suitable land is at a distance greater than ½ mile from a road, most of which is in compartment 179. Small amounts of system and temporary road may be needed to access individual stands. Some stands that are currently considered suitable may prove to be unsuitable due to difficult access. The topography and road system in the project area is well suited for ground based harvest systems and there some stands that may be appropriate for cable logging.

TM 2 and 3: How does the road system affect managing the suitable timber base? How does the road system affect access to timber stands needing silvicultural treatment?

Current road system is generally adequate for silvicultural management and access to timber. Limited amounts of temporary road and system road may be needed.

WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?

Road access is adequate within this analysis area to build, maintain, operate and monitor structures associated with water use. A 12-mile water diversion exists within this analysis area and conveys water from Apalachia Lake to the Apalachia Powerhouse. Road access (23, 23A, 1065 and 1166) is adequate to maintain, monitor and operate this facility.

WP (2): How does road development and use affect water quality in municipal watersheds?

The analysis area is a portion of the Hiwassee River watershed. The Hiwassee River is classified as “Domestic and Industrial Water Supply” by the State of Tennessee. Main tributary streams of the Hiwassee River within the analysis area include Coker Creek, Wolf Creek, Land Branch, Brushy Creek and Turtletown Creek. These streams are classified as “Naturally Reproducing Trout Stream”, “Trout Stream” or “Fish and Aquatic Life”, “Recreation”, “Livestock Watering and Wildlife” and “Irrigation”. The effects of roads on water quality within the analysis area are considered in Questions AQ (1) – AQ (9).

WP (3): How does the road system affect access to hydroelectric power generation?

The Apalachia Powerhouse is located about 2 miles downstream from the analysis area. There is an adequate road access to the facility for its operation and maintenance. 161-kV power transmission lines cross the analysis area. These lines tie into the Apalachia Hydro Plant switchyard. Road access to the lines is critical to perform periodic maintenance. Necessary access roads are in place and are adequate.

SU (2): How does this road system affect managing special-use permit sites (concessionaires, communication sites, utility corridors, and so on)?

Three-power transmission line crosses the analysis area.

The Hiwassee – Alcoa goes from Joe Brown Highway north across Tellico Ranger District. Road access to the line is critical to perform periodic maintenance. Access to this transmission line is by NFSR’s 40, 40A, 11791, and 2114. Necessary access roads are in place and are adequate.

The Hiwassee – Chickamauga goes from Joe Brown Highway to Apalachia Powerhouse. Road access to the line is critical to perform periodic maintenance. Access to this transmission line is by NFSR’s 40, 2131, 2131A, 11140, 22, and 2140. Necessary access roads are in place and are adequate.

The Hiwassee – Apalachia goes from Apalachia Dam to Apalachia Powerhouse. Road access to the line is critical to perform periodic maintenance. Access to this transmission line is by NFSR’s 1166, 23, 1163, 23A, and 1162. Necessary access roads are in place and are adequate.

There are Road Right-of-Way easements to private individuals on NFSR’s 11140, 11372, 37A, 37B, 11665, and 11792. Necessary access roads are in place and are adequate for current use.

There is one road right-of-way in deed to an individual on NFSR 11131. Necessary access road is in place and is adequate for current use.

One individual has a spring box special use permit in Compartment 179. Access is across private land.

Fort Loudon Electric Co-operative has power transmission lines on National Forest land along Highway 68 and Duckett Ridge road. Necessary access roads are in place and are adequate.

Tennessee Overhill owns the railroad line through this analysis area (formerly L&N Railroad). Currently the rail line is being use to haul ore from Copperhill. Excursion trains are planned for this fall. Only the full trips will be in this analysis area.

Bell South has a fiber optic cable buried in NFSR 68.

Tellico Telephone Company has telephone lines in NFSR 22, 11141 and an old woods road off 11141

GT (1): How does this road system connect to public roads and provide primary access to communities?

There are two major areas of private land in the Upper Hiwassee study area: the northwestern section, which is in Monroe County and the southern area, which is in Polk County. There are no specific communities accessed solely by Forest Service roads that serve the study area. NFSRs in the study area connect to state and county roads that lead to the Irsonburg, Cataska, Epperson and Coker Creek communities in Monroe County and to the Harbuck, Turtletown and Farner communities in Polk County. NFSR 40, Joe Brown Highway, connects to NC 1452 and provides connection between Coker Creek in Tennessee and Cherokee County, NC. The collector road system within the study area is mainly State Highways and Polk and Monroe County roads but includes parts or all of the following Forest Service collector roads:

<u>Road No.</u>	<u>Road Name</u>
40	Joe Brown Highway
311	Old Highway
22	Duckett Ridge
23	McFarland
80	Smith Mountain
66	Ditney Mountain
68	Kimsey Highway

GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, in holdings, and so on)?

There are some private land inholdings in the study area that are accessed by roads described in GT (1) plus some additional local roads that provide access through easement or special use permit. The following roads provide access to private land:

Collector Roads open to the public that provide access to private land:

<u>Road No.</u>	<u>Road Name</u>
22	Duckett Ridge
40	Joe Brown Highway
66	Ditney Mountain
68	Kimsey Highway

Only NFSR 22 has rights-of-way across private lands noted in the Status Atlas.

Local Roads not necessarily open to the general public that provide access to inholdings:

<u>Road No.</u>	<u>Road Name</u>
443301	Payne Ridge
11131	Rogers Easement
11792	Beaty Easement
11140	Yano Easement
37A	Herndon Easement
37B	Childers Easement
11372	Lavigne Easement
11665	Worthy Easement

Some of these roads are open to the public and others are gated and only available to the permittee or easement holder.

Collector and Local Roads that provide access to TVA power lines:

<u>Road No.</u>	<u>Road Name</u>
40	Joe Brown Highway
40A	TVA Road No. 10
2131	Yearling Gap
2131A	TVA Road No. 11
11791	Doc Rogers Fields
2114	Dalton Branch
11140	Yano Easement
22	Duckett Ridge
2140	Ironsburg
1166	Apalachia Tunnel
23	McFarland
1163	Adit Extension
23A	Turtletown Adit
1162	North Smith Mountain

Some of these are open to the public; others are gated for administrative use including TVA access.

GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)?

There are no shared ownership (cost-share) roads on the Forest. We have cooperative road agreements with Polk County and with Monroe County for sharing various types of work activity from planning to maintenance on roads of common interest to the FS and to the counties. There are currently no projects with either county in the study area; however, the Coker Creek Bridge on CH 619 Cooper Hollow Road was recently proposed through the Forest Highway program but dropped because Monroe County has it planned under another program.

GT (4): How does the road system address the safety of road users?

Part of NFSR 77 Oswald (3.42 miles) exists in the study area as a paved road with objective maintenance level 3. There are several open FS roads in the study area that have objective maintenance level 3 and are single lane with turnouts and designed for low volume, low speed traffic. Since they are subject to the Highway Safety Act, safety of road users is a concern. But being designed for low speed and low volume, safety is usually not a major problem. They are normally bladed twice a year and the roadsides mowed every two years. Other activities that are done on an as-needed basis include hazard tree removal, slide repair, pothole repair, etc. Most of the other roads in the area are not open to public and are used only when needed for specific purposes, such as the timber sale. Safety is not as much of a concern on those roads where there is generally single use and very little traffic.

The following roads have objective maintenance level 3:

<u>Road No.</u>	<u>Road Name</u>	
40	Joe Brown Highway	
311	Old Highway	
22	Duckett Ridge	
22B	Duckett Ridge Ext.	
23	McFarland	
23A	Turtletown Adit	(recommended to be changed to ML 2)
80	Smith Mountain	
66	Ditney Mountain	
68	Kimsey Highway	
443301	Payne Ridge	
198	Buck Bald	
2138	Coker Creek Falls	
1166	Apalachia Tunnel	(first 1.0 mile)
11651	Turtletown Creek	

UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded* recreation opportunities?

There are no inventoried roadless areas within the project area that could be affected by road management decisions. The area is managed primarily as Roaded Natural and Remote Roaded Natural recreation setting described in the Forest Plan as, *“developed, but highly roaded settings popular for dispersed recreation activities such as hunting, fishing, camping and horseback riding”* (p. 304). Unroaded recreation opportunities are highlighted below:

Long-Distance Trails

The long-distance Benton MacKaye Trail (BMT) provides an alternate backcountry route to the Appalachian National Scenic Trail (AT) from Springer Mountain, GA to Davenport Gap, TN, or can be hiked as a long- distance loop in conjunction with the AT. The Benton MacKaye trail traverses the Cherokee National Forest from the Georgia border until it crosses into the Great Smokey Mountains National Park. Within the project area boundaries, the BMT primarily follows approximately 13.5 miles along the Unicoi Mountain ridgeline. The Benton MacKaye Trail Association is active with trail maintenance and planned hikes. This phase of the trail was completed in February 2005, with a grand opening in July- so it is a relatively new route but has been in planning for 25 years.

Another long-distance route featured in these watersheds is the John Muir National Recreation Trail #152. This 20.7 mile nationally designated trail winds along the Hiwassee State Scenic River. Approximately 8 miles are within the study area. This section of the trail is the primary access to this portion of the Hiwassee River. The desired Recreation Opportunity Spectrum (ROS) setting is Remote Roaded Natural 2 with an emphasis on maintaining or enhancing the dispersed, primitive quality of FS #152. *Opportunities:* Manage this section of John Muir Trail and the Hiwassee River to promote primitive experience and preserve unique qualities of the trail. Monitor portion of John Muir Trail that crosses TN 68 for illegal dumping. Evaluate potential to open trailhead access at this juncture. Consider partnership/educational opportunities and incentives to reduce dumping on Forest Service Roads throughout the project area.

Scenic Destination Hikes

The Coker Creek Scenic Area provides the setting for a scenic hike along Coker Creek Falls Trail #183. Visitors view a series of deep, clear pools followed by cascading stair-step falls complimented by seasonal displays of native vegetation. This area is popular for waterplay, picnicking, dispersed camping and some fishing.

Turtletown Falls Trail #185 provides loop hiking access to sightseeing and swimming at the upper and lower waterfalls. The area is heavily used by anglers and is regularly stocked by TWRA. There is some dispersed camping at parking area.

Other Trail Opportunities

The Unicoi Mountain Trail FS# 82 is 4.5 miles long, Smith Mountain Trail FS# 81 is 3.4 miles, both one way. Both of these trails are open to motorcycle, bicycle, hike, and horse use. There is some concern that these trails are relatively short in duration for motorized trail use and may spawn illegal trails, “spider-webbing” along the trail causing resource damage, or illegal motorized use on Forest Roads (non-street legal motorbikes use on Forest Service Roads). Street legal motorcycles as well as equestrians use both Smith Mountain Trail FS# 81 and the Unicoi Trail FS# 82 in conjunction with Forest Service Roads. Reference Appendix J in the revised Forest Plan, “Screening Criteria for New OHV Systems” for direction in evaluating these trails for future management.

Unicoi Mountain Trail FS# 117 is open for horse, bike, and hike use and is used in conjunction with the Joe Brown Highway for loop opportunities.

An opportunity for heritage tourism is hiking the Unicoi Turnpike National Millennium Trail, one of the oldest known travel routes in North America, which traverses a portion of the project area. Historically, this was the principle route from the Atlantic Coast to the interior Southeast. It became part of the Trail of Tears, the main route for the Cherokee Removal of 1838. Interpretive panels along the way describe this historic trail.

Camping

There are no developed overnight facilities in the study area managed by the Forest Service. There may be private lodging or camping facilities managed by the private sector on private land. Dispersed camping is featured as part of the backcountry experience along the long-distance trails. There is some dispersed camping off of Forest Service Roads and at trailheads.

Hunting /Wildlife Viewing

Most of the Cherokee NF is open for hunting within legal seasons. Areas such as recreation and administrative sites are closed to hunting. Hunting in the watershed is primarily accessed off developed roads and trails. Doc Rogers Fields as well as 3 additional smaller wildlife openings are within the study area.

Fishing

Turtletown Creek is stocked several times a year, and is a fishing destination. Wolf Creek is easily accessible from the nearby road and has rainbow and brown trout. Coker Creek has marginal fishing opportunities.

Water-Based Recreation

Water-Based Recreation in the study area includes the fishing mentioned above, and sightseeing and waterplay at Coker Creek and Turtletown Falls. The John Muir National Recreation Trail #152 provides views to the Hiwassee State Scenic River. The section of the River in the study area currently does not support whitewater boating as the volume of flow is relatively low with periodic temporary spills for flood storage recovery.

UR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?

Development, use and maintenance of roads into these areas could diminish the existing quantity, quality and type of unroaded opportunities to some extent, specifically, the sense of remoteness, solitude, challenge and risk. Increasing maintenance levels of existing roads could potentially change recreational setting and use in the Upper Hiwassee/ Coker Creek Watershed. For example, increasing maintenance levels could thereby increase access to recreation opportunities and thus increase the volume of use. This increased volume of users may degrade the sense of solitude and remote qualities anticipated by many unroaded recreation enthusiasts. Conversely, if an existing paved road maintained for passenger cars changed maintenance to limiting the use to those with high clearance vehicles, or to a trail, user density would likely decrease, in so doing, increase the feeling of remoteness and decreasing evidence of humans.

The Hiwassee State Scenic River is a featured setting in this study area. This section of the River is primarily viewed from the John Muir National Recreation Trail #152 or from the segments of State Scenic Parkway TN 68 and Schuler Creek County Road 37 where they cross or parallel the River. This contrasts to the Hiwassee River Corridor Area west of the Appalachia Powerhouse where there is easy vehicular access and developed facilities. Note: there is a potential change in the volume of flow east of the Appalachia Powerhouse which may draw additional recreational demands for waterplay and rafting opportunities and access. There is limited vehicular access to this portion of the River. Building additional roads may have detrimental effects on the desired Remote Roaded Natural 2 ROS setting along Trail #152.

UR (3): What are the adverse effects of noise and other disturbance caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities?

Many recreation activities, particularly day trips, hinge on points of access, such as trailheads, or points of access to favorite hunting or fishing grounds. An increase in the TSL or ML would decrease the perceived level of risk and challenge associated with accessing areas for hunting, fishing, camping, hiking and backpacking. Road improvements may invite additional use of the area and decrease the desired sense of remoteness and solitude.

UR (4): Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads?

A featured activity in this analysis area is remote backcountry and long-distance trail use. There are multi-use trails providing opportunity for hiking, dispersed camping, biking and some horseback and motorcycle-riding. Hunting, fishing, nature study and wildlife viewing are other

activities enjoyed by visitors to the Upper Hiwassee/ Coker Creek Watershed area. The Cherokee National Forest serves urban populations from nearby cities in Tennessee, Georgia, Virginia and North Carolina, as well as neighboring rural communities. All of these users would be affected by road building, maintenance, or decommissioning.

The newly established Benton MacKaye Trail has linked several existing trails and routes to create a unique long-distance trail opportunity through both unroaded and roaded areas. The John Muir National Recreation Trail offers opportunities for a long distance hike along the Hiwassee River. A portion of the Unicoi Turnpike National Millennium Trail crosses through the Upper Hiwassee/ Coker Creek Watershed area, where visitors retrace the steps of this historic route. See UR (1) for breakdown of unroaded recreation opportunities within these watersheds.

UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

MacKaye and John Muir Trail hikers' attachments may include strong feelings of solitude and remoteness. They seek a backcountry recreation setting that is non-motorized, quiet, remote, scenic and semi-primitive. Anglers and hunters share some of the same attachments, but may place a higher value on road access to remote fishing and hunting areas. Destination hikers at Turtletown and Coker Creek Falls seek a scenic and unique water-based landscape.

Participants' attachments range from steady repeat weekend use to seasonal or yearly visits. Each visit helps user formulate attachment and specific expectations. Several recreation opportunities are relatively unique and have national significance. The Coker Creek Falls Trail received a national award in the 1980's in recognition of the partnership between the Forest Service and a local community group. The John Muir Trail is a National Recreation Trail as part of the overall value of this trail. The Unicoi Turnpike National Millennium Trail and Camp Armistead is significant nationally, to locals, and the Cherokee Nation for the rich cultural history associations. State Scenic Parkway TN 68 and the Hiwassee State Scenic River are valued for their scenic attractiveness.

UR (6): How is developing new roads into unroaded areas affecting the Scenic Integrity Objective, SIO(s)?

Developing roads into unroaded areas will affect the setting, both physical and social. SIO's are developed in response to social values and perception of landscape character and aesthetic value. Road development will likely alter both the landscape character and social perception. There are several sightseeing destinations within the study area including Coker Creek, Turtletown Falls, and Buck Bald. State Scenic Parkway TN 68 and the Hiwassee State Scenic River have been recognized at a State level for their scenic attractiveness. Developing new roads into scenic areas has the potential to degrade the scenic character.

Road-related recreation opportunities in the project area include driving for pleasure, sightseeing, and some horse and motorcycle use in conjunction with Forest Trails. Many other recreation activities, particularly day trips, hinge on points of access, such as trailheads, or points of access to favorite hunting or fishing grounds.

RR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of road-related recreation opportunities?

Buck Bald is a former firetower site maintained as a grassy bald with picnic tables surrounded by long-distance mountain vistas. Buck Bald is a destination for scenic driving, picnicking,

sunbathing, and those interested in firetower history. Improving the roadway may enhance this road-related recreation opportunity. Developing roads into unroaded areas viewed from Buck Bald has a potential to degrade the overall scenic character from this unique site.

State Scenic Parkway TN 68 bisects the study area and provides the major vehicular access route for local traffic, those driving for pleasure, sightseeing and seeking recreation opportunities. Improving the roadway may enhance this road-related recreation opportunity. Developing roads into unroaded areas viewed from the road has a potential to degrade the overall valued scenic character.

The Unicoi Mountain Trail FS# 82 is 4.5 miles long, Smith Mountain Trail FS# 81 is 3.4 miles, both one way. Both of these trails are open to motorcycle, bicycle, hike, and horse use. Street legal motorcycles as well as equestrians use both Smith Mountain Trail FS# 81 and the Unicoi Trail FS# 82 in conjunction with Forest Service Roads for loop opportunities.

Unicoi Mountain Trail FS# 117 is open for horse, bike, and hike use and is used in conjunction with the Joe Brown Highway for loop opportunities. Additional roads in scenic areas may degrade the overall scenic character. Decommissioning roads or converting their use to trails may enhance trail related recreation opportunities.

RR (4): Who participates in road-related recreation in the areas affected by road building, changes in road maintenance, or road decommissioning?

This analysis area provides a broad range of recreation opportunities. Driving for pleasure and sightseeing are popular road-related recreation activities. Many other recreation activities, particularly day trips, hinge on points of access, such as trailheads, or points of access to favorite hunting or fishing grounds. Recreation enthusiasts from local communities, as well as those that travel from urban centers to recreate in the analysis area would be affected by road building, changes in road maintenance, or road decommissioning.

RR (5): What are these participants attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

The Coker Creek vicinity is characterized by opportunities to explore the area's cultural heritage. Scenic driving along State Scenic Parkway TN 68 affords the visitor views of a rural pastoral country side with a forested mountain backdrop and connects the historic communities of Coker Creek, Ironsburg, Farner, Turtletown, Harbuck as well as nearby Dogtown, Ducktown, and Tellico Plains. Panning for gold in Coker Creek and viewing the effects of historic copper smelting and mining in the surrounding copper basin are potential activities for cultural heritage enthusiasts. Locals value their cultural heritage and see heritage tourism and recreation as potential economic generators for their communities. The Hiwassee State Scenic River are valued for unique scenic attractiveness.

Participants' attachments range from steady repeat weekend use to seasonal or yearly visits. Each visit helps user formulate attachment and specific expectations. Several recreation opportunities are relatively unique and have national significance. The Coker Creek Falls Trail received a national award in the 1980's in recognition of the partnership between the Forest Service and a local community group. The John Muir Trail is a national recreation trail. The Unicoi Turnpike National Millennium Trail and Camp Armistead is significant to locals, nationally, and to the Cherokee Nation.

RR (6): How does the road system affect the Scenic Integrity Objective, SIO?

The road system affects the SIO's by defining the social and physical setting from which the SIO's are derived primarily viewed. Developing roads into unroaded areas will affect the setting, both physical and social. SIO's are a response to social values and perception of landscape character and aesthetic value. Road development will likely alter both the landscape character and social perception. There are several sightseeing destinations within the study area including Coker Creek, Turtletown Falls, and Buck Bald. State Scenic Parkway TN 68 and the Hiwassee State Scenic River have been recognized at a State level for their scenic attractiveness. Developing new roads into scenic areas has the potential to degrade the overall scenic character.

SI (10): How does road management affect people's sense of place?

See questions **RR (5)** and **UR (5)**.

SUMMARY AND RECOMMENDATIONS

- Keep all system roads as currently managed (same RMOs) except for NFSR 23A. See Recommendation 5. Raise operational maintenance level to objective maintenance level on roads where it is lower. Acquire needed rights-of-way.
- Decommission unclassified roads where illegal access is taking place. Continue to look for and identify other such roads to decommission.
- Monitor private development along NFSRs with FS jurisdiction and maintenance and look for opportunities to turn jurisdiction and maintenance over to counties where appropriate. Especially, monitor development along the east end of NFSR 68.
- Continue to maintain and improve high use open roads to meet Goals 47, 48 and 50.
- Change management of NFSR 23A from open for sedan use (current RMO is C3) to closed except for FS administrative and other approved use (such as TVA for power line and tunnel maintenance) (proposed RMO would be D2-FS). Reasons for changing include: lack of funding, low priority to maintain to 3, temporary closure for timber sale is working well, operational ML is 2, traffic service level is already D. Closure would affect anglers currently accessing the Hiwassee River.

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ROADS ANALYSIS TEAM

Mary Dodson, Wildlife Biologist
Janan Hay, NEPA Coordinator
Jim Herrig, Forest Fisheries Biologist
Charlie Lewis, Civil Engineer
Mike Nicolo, Forest Hydrologist

Bob Lewis, Silviculturist
Mark Pistrang, Forest Botanist/Ecologist
Doug Byerly, Forest Recreation Specialist
Sarah Belcher, Landscape Architect